Budtender Perceptions and Knowledge of Cannabis and Mental Health: A Preliminary Study

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ABSTRACT

Objective: Legal cannabis dispensary employees ("Budtenders") are a significant resource for cannabis users. Current research indicates that cannabis use may adversely impact mental health. Public perception, however, is often inconsistent with this evidence, leading to increased use and disproportionate harm towards individuals with mental health disorders. This underscores the need for a deeper understanding of how Budtenders may influence these perceptions. This preliminary cross-sectional survey assessed Budtender perceptions and knowledge of cannabis use and its implications for mental health. **Method:** Researchers recruited Budtenders (N = 46) from legal cannabis dispensaries (Ontario Cannabis Stores) across the Greater Toronto (Canada) Area to participate in a 15-minute online survey. The survey collected non-identifying demographic data and responses about perceptions, education and customer interactions surrounding cannabis and mental health. **Results:** We found that Budtender perceptions (N = 46) of cannabis' influence on mental health vary significantly based on symptomatology assessed, and often diverge from evidence-based knowledge. Notably, 54.6% of Budtenders rated cannabis as having a beneficial effect across the outcomes assessed, with sleep and depression most frequently perceived as beneficial. Customers inquired about the mental health effects of cannabis at 21% of cannabis store visits. There was considerable variability in the sources from which Budtenders derived their knowledge. **Conclusions:** This study underscores significant gaps between Budtender perceptions and scientific evidence regarding cannabis use and mental health. Determining the impact of these perceptions is crucial for developing targeted, evidence-based educational interventions to mitigate the risks associated with recreational cannabis use.

Key words: = cannabis; mental health; public health; education

Cannabis has emerged as a central topic of public discourse, marked by shifts in legal frameworks, societal perspectives, use patterns, and health considerations. In 2021, an estimated 4.2% of the global population, aged 15-64 years, used cannabis, representing a 21% increase over the previous decade (United Nations Office on Drugs and Crime, 2023). This increase coincides with an expanding global landscape of non-medical cannabis legalization (Hasin & Walsh, 2021; United Nations Office on Drugs and Crime, 2023). Notably, following Canada's enactment of The Cannabis Act (Bill C-45; Cannabis Act, 2018; Cox et al., 2018) in 2018, cannabis use increased, with ~16% of Canadians reporting past month use as of 2023 (Hall et al., 2023; Health Canada, 2024; Imtiaz et al., 2023). Such legislative action corresponds to heightened frequency and initiation of cannabis use, as well as diminished perceived harm associated with use (Cerdá et al.,

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2020; Gali et al., 2021; Gunadi et al., 2022; Hall et al., 2023; Hasin & Walsh, 2021).

In the context of mental health, observations of increased cannabis use and underestimation of associated risk are common. Surveys within Canada and the United States reveal that individuals who self-report poor mental health status or serious psychological distress are more likely to use cannabis (Rotermann, 2020; Weinberger et al., 2019). Moreover, the perception of cannabis as a harmless and/or therapeutic option for managing mental health issues has become increasingly common (Lowe et al., 2019; Urits et al., 2020). Data from the International Cannabis Policy Study indicates that cannabis users commonly report alleviation of mental health symptoms, such as anxiety, depression, and trauma in association to use (Leung et al., 2022; Rup et al., 2022). Further research reveals comparable motivations and contexts for cannabis use, including dissatisfaction with conventional treatment, using cannabis as a substitute for prescription medication, and the continued use of cannabis without consulting healthcare providers (AminiLari et al., 2023; Das et al., 2024). Perceptions may be further complicated due to the nature of cannabis withdrawal which often presents with depression and anxiety, therefore blurring the lines between self-medication and withdrawal management (Connor et al., 2022). Moreover, the perception that cannabis offers mental health benefits is reportedly more common amongst individuals with a mental health disorder compared to those without (Pacek et al., 2020; Rup et al., 2022; Sexton et al., 2016).

Despite the perceived benefits of cannabis for mental health, especially given the presumption of self-medication (Hill et al., 2022; Lowe et al., 2019), there is divergence from the current evidence. Cannabis consists of over a hundred cannabinoids, including cannabidiol (CBD) and delta-9-tetrahydrocannabinol (THC; Hall et al., 2019; Lowe et al., 2019; National Academies of Sciences et al., 2017). Most commonly, amongst cannabis users, research indicates increased risk for, and earlier onset of, psychosis and schizophrenia, as well as exacerbated symptom severity and worsened outcomes within this population (Hasan et al., 2020; Lowe et al., 2019; Polkosnik et al., 2021; Sorkhou et al., 2021). Similarly, research highlights an association between cannabis use and a higher prevalence of depressive and manic symptoms in the general population, along with a higher risk of developing major depressive disorder and bipolar disorder, as well as poorer functional outcomes (Sorkhou et al., 2024; Tourjman et al., 2023). Research investigating cannabis' therapeutic effects for schizophrenia and depression is limited and primarily pertains to CBD administration, of which provides equivocal evidence (National Academies of Sciences et al., 2017). The evidence describing the association between cannabis use and PTSD and anxiety disorders is mixed. Individuals not only use but are also prescribed cannabis for PTSD symptom alleviation; however, the lack of methodologically robust research, notably randomized controlled trials, indicates insufficient evidence for therapeutic effects in PTSD (Bedard-Gilligan et al., 2022; Rodas et al., 2024). Moreover, there is limited evidence to characterize the association between cannabis use and anxiety; however, preliminary findings indicate that regular cannabis use may be associated with the subsequent onset of anxiety symptoms, as well as a worsened prognosis among individuals diagnosed with an anxiety disorder (Botsford et al., 2020; Feingold et al., 2018; Lowe et al., 2024). Importantly, research investigating cannabis' therapeutic effects for anxiety is similarly focused on CBD, with limited and equivocal findings (National Academies of Sciences et al., 2017). Moreover, research shows that cannabis use is associated with poorer outcomes in sleep and cognition (Edwards & Filbey, 2021; Hser et al., 2017; Kroon et al., 2021; Scott et al., 2018). Thus, current research suggests that cannabis use may exacerbate symptoms and outcomes across a range of mental health disorders.

Public perceptions about cannabis and its effects on mental health often contradicts the evidence. Moreover, research indicates that individuals who perceive fewer risks associated with cannabis are more likely to, and more frequently, use cannabis (Florimbio et al., 2024; Gali et al., 2021; Han & Shi, 2023; Leos-Toro et al., 2020; Salloum et al., 2018). Consequently, favorable perceptions of cannabis use on mental health may translate into increased use, with disproportionate harms to individuals with, or at high risk of, mental health disorders. This underscores the need for a comprehensive understanding of not only public perceptions of

cannabis, but also sources of knowledge and guidance that may shape these perceptions.

Legal cannabis dispensary employees in Canada (i.e., "Budtenders") serve as a significant resource for cannabis users, particularly those who use recreationally (i.e. non-medical cannabis users). Existing research from the United States shows that Budtenders provide guidance to consumers on cannabis strains, administration methods, potential side effects and benefits for clinical symptoms, with recommendations made based on varied sources (Carlini et al., 2022; Haug et al., 2016; Merlin et al., 2021). Similar findings have been qualitatively described within the Canadian context, of which individuals with mood and anxiety disorders commonly seek information from non-medical sources, including staff at cannabis stores (Das et al., 2024). Budtenders commonly perceive cannabis as beneficial and low-risk for various health concerns, including mental health disorders such as PTSD (Bulls et al., 2023). Moreover, amongst people with multiple sclerosis and chronic pain who use cannabis, Budtenders are perceived as an essential source of guidance, ranking them above the internet, scientific publications, and medical professionals (Boehnke et al., 2019; Salter et al., 2022). Thus, Budtenders may play a crucial role in influencing cannabis product selection and use, relying on anecdotal evidence rather than scientific information (Lange et al., 2023). A Canadian cross-sectional survey found that 88% of Budtenders and managers received questions about perceived medical use and/or benefits of cannabis, with over 90% of respondents receiving questions specifically related to whether cannabis could help with anxiety, depression or sleep (Cameron et al., 2023). Thus, there is a distinct research gap in Budtender education, perceptions, and customer engagement, following non-medical cannabis legalization in Canada.

This preliminary study sought to assess Budtenders' perceptions and knowledge of cannabis use and mental health. The results of the survey provide important information on how Budtenders may be shaping legal cannabis perceptions and use patterns, which can be used to inform public health strategies and educational efforts.

METHODS

Study Design

The study employed an online, cross-sectional survey from September–November, 2023 in the Greater Toronto Area (GTA), Ontario, Canada. The inclusion criteria were individuals aged 19 years and older, proficient in English, employed at a legal cannabis retail store ("Budtenders") in the GTA, and with access to an internet-connected device for survey participation. The Research Ethics Board (REB) at the Centre for Addiction and Mental Health approved the study (REB#2023-046), and the Alcohol and Gambling Commission of Ontario (AGCO), the regulator of legal cannabis stores in the Province of Ontario, endorsed the study.

The AGCO facilitated recruitment via email through its database of legal cannabis retail store managers and owners. The AGCO, on behalf of the principal investigator (TPG), sent recruitment emails that explained their role as solely aiding in connecting the research team with potential Budtender participants. The emails also included a detailed project description, requirements (e.g., eligibility criteria), and information to be forwarded to participants (i.e., the study information, an invitation to participate, and an informed consent link). Store managers and owners reviewed and distributed the information to their staff for participation at their discretion.

Participants first completed and submitted the consent form to provide informed consent. Participants accessed the self-administered survey on REDCap, which took approximately 15 minutes to complete. The survey collected all data without personal identifiers. Participants learned about the research objectives and provided consent, and then were reassured of their anonymity before proceeding to the survey. After completing and submitting the survey, participants accessed a separate REDCap form to receive renumeration ($10 eGift card).

Study Measures and Analysis

The survey included 42 items (See Appendix 1), collecting data across multiple dimensions. The survey examined sociodemographic characteristics, including age, gender identity, race and ethnicity, education, and cannabis use history. The survey also assessed perceptions on the effects of cannabis on mental health and characteristics of customer interactions (e.g.,

frequency of mental health-related inquiries, Budtender influence and responsibility), measuring all responses on Likert scales. Additionally, the survey assessed Budtender knowledge sources. An extensive review of existing literature and validated instruments, where applicable, informed the development of all items, ensuring relevance and rigor.

The data was analyzed from the completed surveys using IBM SPSS Statistics (Version 28.0). Given the exploratory nature of this pilot study, we employed comprehensive descriptive statistics to characterize the data, including measures of central tendency (mean, median, mode) and dispersion (frequencies, percentages, standard deviations), as well as proportional analyses.

RESULTS

Participant Demographics

A total of 46 participants provided informed consent. Demographic characteristics are detailed in Supplemental Table 1. The sample was predominantly cisgender men (39.1%) and women (37.0%), with an average age of 35.4 years (SD = 14.0). The majority of participants identified as 'White-North American' (41.4%) or 'White-European' (19.0%). A significant portion (95.7%) had at least a high school education. Notably, 71.7% of participants were cannabis users within the past six months. A minority reported cannabis use more than six months prior, and two individuals reported never using cannabis.

Due to incomplete responses to individual survey questions, the sample size analyzed varies across results (e.g., n = 40), and it is not a consistent subset of the original N= 46. Therefore, demographic data are reported for the full sample for context.

Table 1. *Perceptions of Cannabis' Effects on Mental Health (N = 40)*

Mental Health Outcome	Extremely harmful % (*n*)	Somewhat harmful % (*n*)	Neither harmful nor beneficial % (*n*)	Somewhat beneficial % (*n*)	Extremely beneficial % (*n*)	"I don't know" % (*n*)
Mental Health (THC)	2.5 (1)	12.5 (5)	32.5 (13)	22.5 (9)	12.5 (5)	17.5 (7)
Mental Health (CBD)	0.0 (0)	2.5 (1)	17.5 (7)	25.0 (10)	40.0 (16)	15.0 (6)
Anxiety	0.0 (0)	10.0 (4)	15.0 (6)	47.5 (19)	17.5 (7)	10.0 (4)
Social Anxiety	0.0 (0)	10.0 (4)	20.0 (8)	37.5 (15)	20.0 (8)	12.5 (5)
Depression	0.0 (0)	5.0 (2)	12.5 (5)	55.0 (22)	20.0 (8)	7.5 (3)
PTSD	0.0 (0)	7.5 (3)	5.0 (2)	37.5 (15)	30.0 (12)	20.0 (8)
Psychosis	7.5 (3)	25.0 (10)	27.5 (11)	15.0 (6)	2.5 (1)	22.5 (9)
Schizophrenia*	15.4 (6)	20.5 (8)	25.6 (10)	15.4 (6)	23.1 (9)	0.0 (0)
Bipolar Disorder	5.0 (2)	20.0 (8)	17.5 (7)	32.5 (13)	7.5 (3)	17.5 (7)
Eating Disorders	0.0 (0)	5.0 (2)	7.5 (3)	42.5 (17)	30.0 (12)	15.0 (6)
Sleep	0.0 (0)	2.5 (1)	10.0 (4)	22.5 (9)	62.5 (25)	2.5 (1)
Cognition	7.5 (3)	20.0 (8)	40.0 (16)	22.5 (9)	5.0 (2)	5.0 (2)
Total	3.1 (15)	11.7 (56)	19.2 (92)	31.3 (150)	22.6 (108)	12.1 (58)

Note. *n = 36 (n = 2 missing responses).

Perceptions of the Effects of Cannabis on Mental Health

Budtender perceptions about the effects of THC and CBD on mental health were assessed on a 5-point Likert scale from extremely harmful to extremely beneficial, including the option 'do not know'. Across the sample (n = 40), 67.5% and 97.5% of Budtenders reported that THC and CBD, respectively, have effects on overall mental health ranging from neutral (i.e., 'neither harmful nor beneficial') to 'extremely beneficial' (Table 1). A detailed analysis of Budtender perceptions across specific mental health symptomatology is presented in Table 1. Notably, across the 10 variables that were assessed, 54.6% of the collective 399 responses were classified as somewhat or extremely beneficial.

When considering the effects of cannabis on symptoms of depression, 75.0% of participants reported cannabis as somewhat or extremely beneficial, while only 5.0% of participants

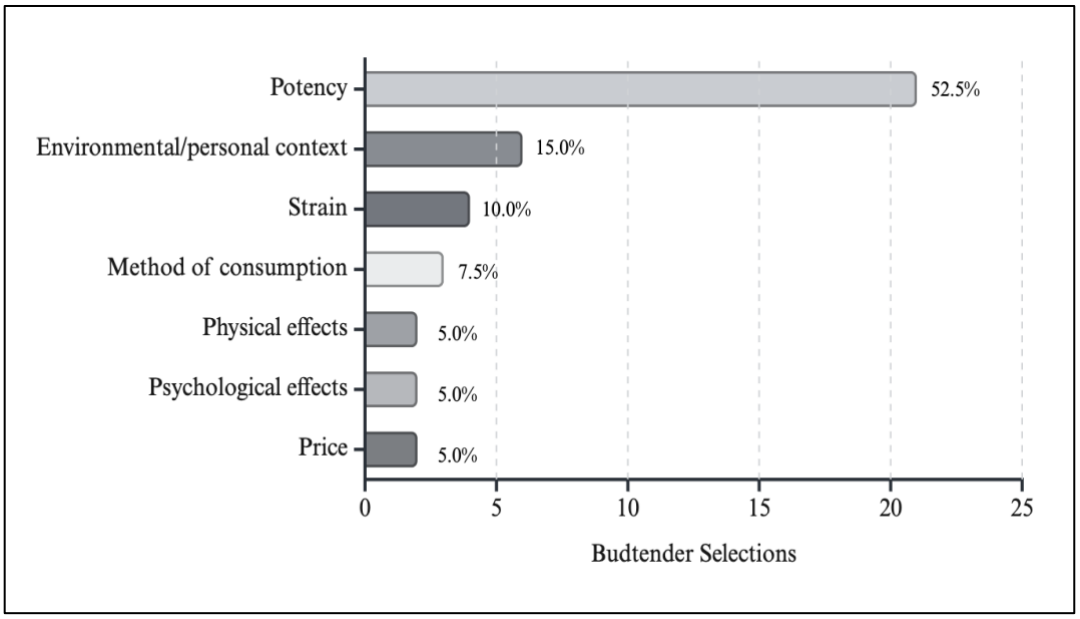
reported any harmful effects. For symptoms of anxiety, beneficial effects were reported by 65.0% of participants, with 10.0% reporting harmful effects. In contrast, perceptions of cannabis' effects on symptoms of psychosis and schizophrenia diverged from the predominantly beneficial views. When considering cannabis' impact on psychosis, 32.5% of participants reported somewhat or extremely harmful effects and 27.5% reported neutral effects; 22.5% indicated a lack of knowledge. For schizophrenia, 35.9% of participants reported somewhat or extremely harmful effects, while 25.6% reported neutral and 38.5% reported somewhat or extremely beneficial effects.

Across the variables assessed, the effect of cannabis on sleep was most frequently perceived by Budtenders as beneficial, with 85.0% of participants reporting a somewhat or extremely beneficial effect. Only a minority reported neutral (10.0%) or somewhat harmful (2.5%) effects.

Customer Engagement: General

Over the past 30 days, Budtenders reported that 71.3% (*SD* = 22.8) of customer interactions involved requests for a product recommendation, with customers purchasing cannabis from recommendations 74.3% (*SD* = 21.4) of the time. The most frequent customer inquiries involved product potency (52.5%), followed by recreational motives (15.0%) and product strain (10.0%;Figure 1).

Figure 1. Most Common Questions (N = 40)



Customer Engagement: Mental Health

Customer engagement about the effects of cannabis on mental health over the past 30 days was assessed using a 7-point Likert scale from 'never' (i.e., 0% of the time) to 'always' (i.e., 100% of the time). Proportional analysis was implemented to further characterize findings (Table 2). Across the variables assessed, the frequency with which customers engaged with Budtenders about these topics was approximately 20.9% (*SD* = 20.7) of the time. Customers inquired 24.0% (*SD* = 22.8) of the time about symptoms of depression and 34.0% (*SD* = 23.0) of the time about symptoms of anxiety. In contrast, customers inquired 8.5% (*SD* = 20.19) and 5.3% (*SD* = 12. 45) of the time, respectively, about symptoms of psychosis and schizophrenia. Most frequently, customers inquired about cannabis' effects on sleep approximately 59.3% (*SD* = 22.7) of the time.

Budtenders (*n* = 38) reported receiving questions that they felt were better suited for medical professionals 43.9% (*SD* = 25.5) of the time.

Table 2. *Past 30-day Customer Engagement Regarding the Effects of Cannabis on Mental Health (N = 40)*

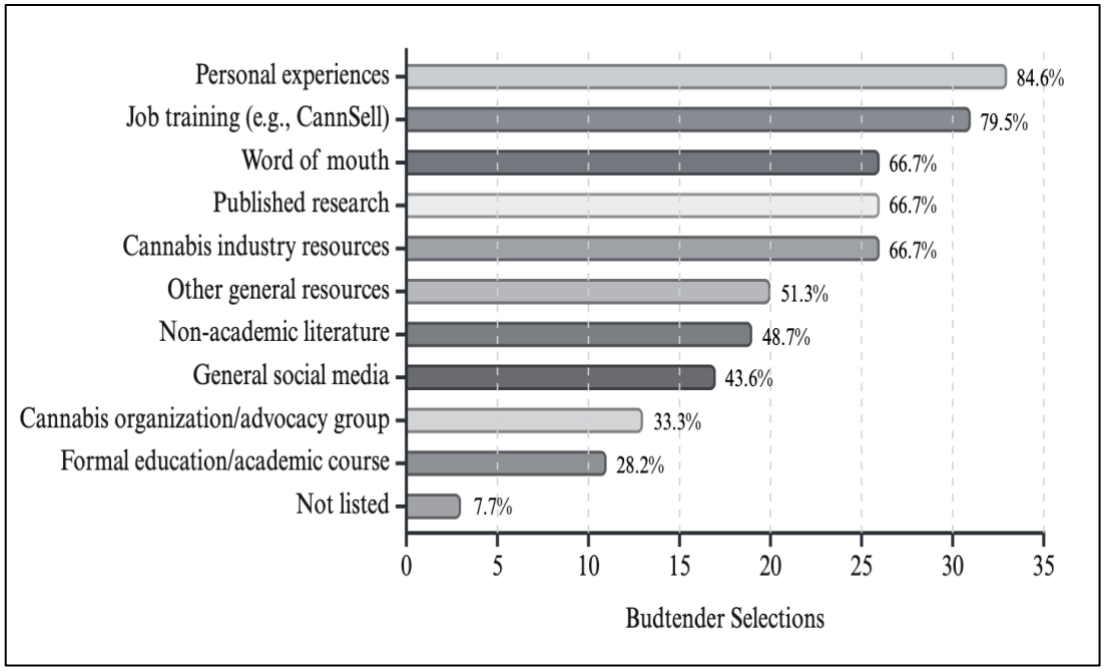
Mental Health Outcome	Never % (*n*)	Rarely (<10% of the time) % (*n*)	Occasionally (~ 30% of the time) % (*n*)	Sometimes (~50% of the time) % (*n*)	Frequently (~70% of the time) % (*n*)	Usually (~90% of the time) % (n)	Always % (n)	Mean* (%)	SD*
Anxiety	15.0 (6)	17.5 (7)	20.0 (8)	35.0 (14)	12.5 (5)	0.0 (0)	0.0 (0)	34.0	23.0
Social Anxiety	27.5 (11)	32.5 (13)	17.5 (7)	12.5 (5)	10.0 (4)	0.0 (0)	0.0 (0)	21.8	22.8
Depression	25.0 (10)	30.0 (12)	15.0 (6)	22.5 (9)	7.5 (3)	0.0 (0)	0.0 (0)	24.0	22.8
PTSD	45.0 (18)	30.0 (12)	12.5 (5)	7.5 (3)	2.5 (1)	2.5 (1)	0.0 (0)	14.5	21.1
Psychosis	80.0 (32)	5.0 (2)	2.5 (1)	10.0 (4)	2.5 (1)	0.0 (0)	0.0 (0)	8.5	20.2
Schizophrenia	77.5 (31)	12.5 (5)	5.0 (2)	5.0 (2)	0.0 (0)	0.0 (0)	0.0 (0)	5.3	12.5
Bipolar Disorder	67.5 (27)	10.0 (4)	7.5 (3)	15.0 (6)	0.0 (0)	0.0 (0)	0.0 (0)	10.8	18.4
Eating Disorders	60.0 (24)	20.0 (8)	5.0 (2)	12.5 (5)	2.5 (1)	0.0 (0)	0.0 (0)	11.5	19.2
Sleep	0.0 (0)	5.0 (2)	17.5 (7)	22.5 (9)	37.5 (15)	15.0 (6)	2.5 (1)	59.3	22.7
Cognition	37.5 (15)	27.5 (11)	15.0 (6)	12.5 (5)	2.5 (1)	5.0 (2)	0.0 (0)	19.8	24.8
Total	43.5 (174)	19.0 (76)	11.8 (47)	15.5 (62)	7.8 (31)	2.3 (9)	0.3 (1)	21.0	20.7

Note. *Proportional analyses were used to provide the mean (%) and standard deviation (SD) for each outcome.

Budtender Knowledge and Responsibility

Based on a 5-point Likert scale from 'not at all knowledgeable/responsible' to 'extremely knowledgeable/responsible', Budtenders were assessed on their perceived knowledge and responsibility about various cannabis-related topics and communications (Table 3). A majority reported higher levels of knowledge on the psychological effects (66.7%) and physical effects (74.4%) of cannabis, as well as on the differences between THC and CBD (89.7%). The three primary sources of cannabis knowledge among participants were personal experience (84.6%), job training, such as the AGCO-approved training program CannSell (79.5%), and equal proportions between published research, cannabis industry resources, and word of mouth (66.7%; Figure 2).

Figure 2. *Budtender Sources of Knowledge (N = 40).*



Regarding Budtender perceived responsibility, 61.5% of Budtenders felt moderately to extremely responsible for providing scientifically accurate information and 89.7% felt a similar level of responsibility for promoting safe cannabis use (Table 3).

Table 3. *Budtender Knowledge and Responsibility (N = 39).*

Perceived Knowledge	Not at all knowledgeable % (*n*)	Slightly knowledgeable % (*n*)	Somewhat knowledgeable % (*n*)	Moderately knowledgeable % (*n*)	Extremely knowledgeable % (*n*)
New Products	2.6 (1)	10.3 (4)	15.4 (6)	35.9 (14)	35.9 (14)
Methods of Consumption	0.0 (0)	2.6 (1)	7.7 (3)	38.5 (15)	51.3 (20)
Psychological Effects	0.0 (0)	10.3 (4)	23.1 (9)	48.7 (19)	18.0 (7)
Physical Effects	5.1 (2)	2.6 (1)	18.0 (7)	48.7 (19)	25.6 (10)
Legal Regulations	0.0 (0)	0.0 (0)	7.7 (3)	41.0 (16)	51.3 (20)
THC vs CBD	0.0 (0)	0.0 (0)	10.3 (4)	25.6 (10)	64.1 (25)
Perceived Responsibility	Not at all responsible % (*n*)	Slightly responsible % (*n*)	Somewhat responsible % (*n*)	Moderately responsible % (*n*)	Extremely responsible % (*n*)
Evidence-Based Communication	7.7 (3)	2.6 (1)	28.2 (11)	25.6 (10)	35.9 (14)
Promoting Safe Use	0.0 (0)	0.0 (0)	10.3 (4)	5.1 (2)	84.6 (33)

DISCUSSION

To our knowledge, this is the first survey to study perceptions, education, and customer interactions among Canadian Budtenders in the context of recreational cannabis use and mental health. The findings suggest that majority of Budtender perceptions regarding the effects of cannabis on mental health disorders and outcomes diverge from current scientific evidence. Budtenders perceive cannabis to be beneficial towards depression, anxiety, and sleep; however, for psychosis and schizophrenia, perceptions were mixed between perceived harm and benefit. These findings align with previous research, characterizing trends, amongst dispensary staff and the general population, of lowered perceived harm and clinical benefits of cannabis (Bulls et al., 2023; Goodman & Hammond, 2022; Haug et al., 2016). Importantly, these perceptions are in contrast with the growing scientific literature, which offers equivocal evidence supporting the benefit of cannabis across the assessed mental health disorders and outcomes (Botsford et al., 2020; Edwards & Filbey, 2021; Feingold et al., 2018; Hasan et al., 2020; Lowe et al., 2019; Polkosnik et al., 2021; Tourjman et al., 2023), highlighting a critical knowledge gap among Budtenders.

Budtenders report primarily deriving their knowledge from personal experience, followed by formal job training and other diverse resources. Moreover, Budtenders report high levels of knowledge when considering the psychological effects of cannabis, suggesting perceived accuracy in their perceptions. The reliance on personal experiences to inform this understanding reflects previous research indicating dispensary staff often depend on knowledge sources, such as insights from past customer interactions and colleague recommendations (Lange et al., 2023; Merlin et al., 2021), suggesting a reliance on anecdotal information, which may contribute to the discrepancies between Budtender perceptions and established scientific evidence.

Although customers inquired about the effects of cannabis on mental health, inquiries over the past 30 days predominantly focused on product potency, environmental/personal context (e.g., for watching a movie, to "chill out"), as well as strain characteristics, according to Budtenders. This focus of topics reflects previous findings of which cannabis strains and pharmacological makeup (e.g., THC potency) were most commonly inquired by customers (Cameron et al., 2023; Haug et al., 2016). In this study, interactions regarding specific mental health outcomes were comparatively less frequent according to Budtenders, occurring in less than 50% of interactions, with sleep-related inquiries being the most prevalent motive. Nonetheless, Budtenders reported fielding questions surrounding all assessed mental health disorders and outcomes, reflecting previous Canadian

research conducted by Cameron et al. (2023), in which over 90% of Budtenders and recreational dispensary managers received questions regarding anxiety, depression, and sleep. Moreover, a significant number of Budtenders received questions that reportedly would be more appropriately addressed by medical professionals, echoing previous findings (Calcaterra et al., 2020; Cameron et al., 2023; Salter et al., 2022). Budtenders not only address a wide range of questions about cannabis but also perceive having a significant influence over consumer behaviour, with over 70% of customers who received a product recommendation proceeding to purchase the recommended product according to Budtenders. This is consistent with previous research, which suggests that cannabis users frequently rely on and act upon Budtender recommendations (Boehnke et al., 2019; Das et al., 2024; Salter et al., 2022).

Overall, our preliminary findings indicate that Budtender perceptions of cannabis do not align with the current scientific evidence concerning its effects on mental health. Furthermore, according to Budtenders, customers confide in and are influenced by suggestions and guidance when selecting products. Building upon previous research (Dickson et al., 2018; Haug et al., 2016; Merlin et al., 2021), this study offers further evidence of potentially misleading guidance regarding the mental health effects of cannabis. Notably, the majority of Budtenders acknowledged their responsibility in providing scientifically accurate information and promoting safe cannabis use, which aligns with previous research (Carlini et al., 2022). Nonetheless, there exists a significant knowledge and education gap around cannabis' influence on mental health. This complicates interactions with customers who frequently pose questions that Budtenders are not legislatively permitted to address in Canada due to the federal regulations under the Canadian Cannabis Act, which mandates transparent, accurate, and non-promotional information without making any health-related claims (Canadian Cannabis Survey, 2024). With customers frequently asking about these topics, such misinformation and restrictions might leave customers without clear guidance or, potentially, misinformed about the mental health implications of cannabis use—a situation that facilitates the quandary of Budtenders acting as "proxy clinicians" in a commercial retail environment (Calcaterra et al., 2020; Lange et al., 2023). Taken together, our findings highlight the critical need for standardized, accurate training programs for Budtenders, which focus not only on product knowledge but also on the limitations and potential risks associated with communication about the health effects of cannabis.

This study has limitations. First, the reliance on self-reported data introduces potential biases, as actual staff practices are unknown. Second, the specificity of THC versus CBD was not assessed for each question due to the exploratory nature of the study, which may have overlooked nuances in perceptions and knowledge. Instead, the term 'cannabis' was used to streamline the survey and reduce participant burden, while capturing broader perceptions. While the sample size was sufficient for exploratory analysis, there are limitations for the generalizability of findings to represent broader populations. Most of the sample identified as cisgender and white, which further limits generalizability. Moreover, the demographic focus on Budtenders in the Greater Toronto Area may not reflect observations within other regions with varied regulatory environments, such as Quebec, in which commercial regulations are more restricted compared to Ontario and the United States. Additionally, the survey was distributed to the AGCO's database of dispensary managers and owners, who autonomously decided whether to forward it to their staff (i.e., Budtenders). This approach may introduce potential response bias, leading to unobserved differences between respondents and non-respondents, as well as between dispensaries associated with managers and owners who chose to forward the survey versus those who did not, further limiting generalizability.

Future research should aim to expand on this work by collecting data in larger and more demographically diverse populations to improve representativeness of the findings. Moreover, it would be valuable to examine whether Budtenders are recommending specific cannabis products for mental health disorders or outcomes, a practice that has been found in previous studies (Haug et al., 2016), in order to reduce the gap between self-reported perception of customer interactions and actual staff practices. Expanding the scope of research to include a broader array of

mental health disorders and outcomes and cannabis subtypes, such as sub-clinical symptoms like 'high stress' and the delineation between CBD-only and high-THC products, could also provide a more comprehensive understanding of health-related perceptions and interactions within dispensaries. Furthermore, research into the effectiveness of specific educational interventions for Budtenders could yield critical information on how to enhance knowledge for Budtenders. Such studies could ultimately inform best practices and guide policy development, ensuring that Budtenders are equipped to provide accurate and safe advice to consumers.

Conclusions

These preliminary findings shed light on Budtender perceptions, education, and customer interactions related to cannabis use and mental health. With the increasing acceptance and use of cannabis, particularly as a form of self-medication for various mental health conditions, our findings emphasize the need for ongoing research, public health strategies, and improved educational efforts. Future efforts should aim to bridge the gap between anecdotal evidence and scientific research, ensuring that Budtenders and consumers can make informed decisions regarding cannabis use.

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